

Montana Department of Environmental Quality
Guidance for development of Sampling and Analysis Plans (SAPs)
Prepared by: Mark Bostrom, DEQ QA Officer
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Sampling and Analysis Plans (SAPs) are planning documents describing a particular study or data collection effort to support broader program (or project) objectives. Details of the present effort may not have been known when the original QA project plan was developed, or the project *intended* to use a phased or iterative approach to accomplish its objective.

A prerequisite to the development of SAP is a DEQ or EPA approved quality system for the project or organization. These are most often Quality Assurance Project Plans (QAPPs) developed on either a program or project scale.

The level of detail in a SAP varies depending on the level of detail available in the QAPP. If specific information (e.g., Project organization, Site background, SOPs, Etc.) relating to the present study are included in the QA project plan, these can be referenced or cited in the SAP. The “meat and potatoes” of the SAP are, as the title implies, the field collection effort and sample analysis. These should be very detailed, allowing users to understand the aspects of the data collection activity they are performing.

Sampling and Analysis Plans will be reviewed for these basic elements. They must be present, referenced, or listed as not applicable:

1. Introduction and Background
2. Objectives and Design
3. Field Sampling Methods
4. Sample Handling Procedures
5. Laboratory Analytical Methods
6. Quality Assurance and Quality Control Requirements
7. Data Analysis, Record Keeping, and Reporting Requirements
8. Schedule for Completion
9. Project Team and Responsibilities (if different than those listed in QAPP)
10. References (include EPA or DEQ approved QAPP)

Figure 1 Example SAP - Outline and Checklist

1. Introduction and Background Information

- ☐ Site history (reference from QAPP or provide details if QAPP doesn't address this site).
- ☐ Regulatory framework or action levels (e.g., WQB-7, ARM, Reference Conditions)
- ☐ Summary of previous investigations, and conclusions, if any.
- ☐ Location and characteristics of any known pollution sources at the site or in the area
- ☐ Site location map showing relevant features of the surrounding area

2. Objectives and Design of the Investigation

- ☐ Objectives of *this* study (describe how they support the QAPPs goals and objectives)
- ☐ Provide the study design (e.g., Sample characteristics, spatial/temporal limits, and the smallest subpopulation, area, volume, or time frame for which separate decisions must be made).

- ☐ Sampling Station Locations
 - ☐ Rationale for station selection
 - ☐ Site map(s) showing sampling stations and other pertinent features
 - ☐ Proposed reference sites (if not previously established)
 - ☐ Table showing the water depth or flow at each proposed station (if known)

3. Field Sampling Methods

- ☐ Sampling methods (can be cited from DEQ, EPA, USGS, Etc.)
- ☐ Sampling equipment including field instruments
- ☐ Consider representativeness of sample collection methods (e.g., compositing strategy)
- ☐ Sample containers, decontamination procedures
- ☐ Field documentation and sample labeling procedures
- ☐ Procedures for disposal of contaminated sediments

4. Sample Handling Procedures

- ☐ Sample storage requirements (e.g., conditions, maximum holding times)
- ☒ Chain-of-custody procedures
- ☐ Delivery of samples to analytical laboratories

5. Laboratory Analytical Methods

- ☐ Chemical analyses, methods, and target detection limits
- ☐ Biological analyses
- ☐ Corrective actions

6. Quality Assurance and Quality Control Requirements

- ☐ QA/QC for chemical analyses (precision, accuracy, reproducibility)
- ☐ QA/QC for biological analysis
- ☐ Data quality assurance review procedures

7. Data Analysis, Record Keeping, and Reporting Requirements

- ☐ Data interpretation including limits for decision error relative to the consequences.
- ☐ Record keeping procedures
- ☐ Reporting procedures

8. Schedule

- ☐ Table or figure showing key project milestones

9. Project Team and Responsibilities

- ☐ Description of sampling program personnel (if different than shown in QAPP)
- ☐ Table identifying the project team members and their responsibilities

10. References

- ☐ List of references (include reference to QAPP)